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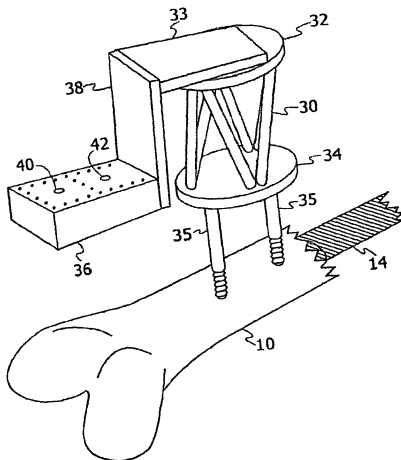
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(54) Title: **ROBOT FOR USE WITH ORTHOPAEDIC INSERTS**



(57) Abstract: A robot-guided system to assist orthopaedic surgeons in performing orthopaedic surgical procedures on pre-positioned inserts, including for the fixation of bone fractures, and especially for use in long bone distal intramedullary locking procedures. The system provides a mechanical guide for drilling the holes for distal screws in intramedullary nailing surgery. The drill guide is automatically positioned by the robot relative to the distal locking nail holes, using data derived from only a small number of X-ray fluoroscopic images. The system allows the performance of the locking procedure without trial and error, thus enabling the procedure to be successfully performed by less experienced surgeons, reduces exposure of patient and operating room personnel to radiation, shortens the intra-operative time, and thus reduces post-operative complications.